

What is claimed:

1. A mine roof bolt for use with a cable, the mine roof bolt comprising:
a barrel, the barrel having a first end, a second end, and a generally cylindrical

outer surface;

5 a bore extending through the barrel between the first end and the second end,
the bore including a generally conical portion narrowing toward the second end, the
bore sized to receive the cable;

a pair of wedges sized for placement in the conical portion of the bore, the
wedges adapted to engage the cable with progressively greater force in response to
10 movement of the wedges toward the second end; and

a recess countersunk in the first end of the barrel, the recess sized to receive a
driving nut.

2. The roof bolt of claim 1, wherein the recess is shaped to receive a
15 square driving nut.

3. The roof bolt of claim 1, wherein the recess is shaped to receive a hex-
shaped driving nut.

20 4. The roof bolt of claim 1, wherein the recess includes a first set of
internal faces adapted to engage a hex-shaped driving nut and a second set of internal
faces adapted to engage a square driving nut.

5. The roof bolt of claim 1, wherein the recess includes a plurality of sidewalls, the sidewalls sized such that a driving nut placed in the recess extends beyond the first end of the barrel.
- 5 6. The roof bolt of claim 1, wherein the recess includes a plurality of sidewalls, at least some of the sidewalls having retaining barbs.
7. The roof bolt of claim 6, in combination with a driving nut, the nut including a plurality all of sidewalls, at least some of the sidewalls having a ledge
10 sized to engage the retaining barbs.
8. The roof bolt of claim 1, wherein the second end of the barrel includes a rounded portion [Note "rounded" is broader than "spherical"].
- 15 9. The roof bolt of claim 8, in combination with a bearing plate having an aperture, the aperture including a seat sized to receive the rounded portion of the second end of the barrel.
- 10 10. The roof bolt of claim 1, wherein the recess includes a floor, and wherein a gap is defined in the bore between the floor of the recess and conical portion of the bore.
11. The roof bolt of claim 1, wherein the wedges are sloped and include teeth adapted to grip the cable.

12. A mine roof bolt for use with a cable, the mine roof bolt comprising:
- a barrel, the barrel having a first end and a second end, the second end having a rounded surface;
 - a bore extending through the barrel between the first end and the second end, the bore including a tapered portion, the bore sized to receive the cable;
 - a pair of wedges sized for placement in the tapered portion of the bore, the wedges shaped to engage the tapered portion of the bore, the wedges further adapted to cooperate with the tapered portion of the bore to frictionally engage a cable disposed in the tapered portion of the bore;
 - a recess defined in the first end of the barrel; and
 - a driving nut sized for insertion in the recess, the driving nut adapted for engagement by a driving tool.
13. The roof bolt of claim 12, wherein the driving nut comprises at least one of a square driving nut and a hex-shaped driving nut.
14. The roof bolt of claim 13, wherein the recess includes a first set of internal faces adapted to engage the hex-shaped driving nut and a second set of internal faces adapted to engage the square driving nut.
15. The roof bolt of claim 12, wherein the recess includes a plurality of sidewalls, the sidewalls sized such that the driving nut disposed in the recess extends beyond the first end of the barrel.

16. The roof bolt of claim 12, wherein the recess includes a plurality of sidewalls, at least one of the sidewalls having a retaining barb.

5 17. The roof bolt of claim 16, wherein the driving nut includes a plurality of faces, at least one of the faces including a ledge sized to engage the retaining barb.

10 18. The roof bolt of claim 12, including a bearing plate having an aperture, the aperture including a seat sized to receive the rounded surface of the second end of the barrel.

19. The roof bolt of claim 12, wherein the recess includes a floor, and wherein a gap is defined in the bore between the floor of the recess and tapered portion of the bore.

15 20. The roof bolt of claim 12, wherein the wedges include a sloped outer surface and further include teeth adapted to engage [because "grip" and engage may possibly be construed slightly differently, I'd prefer to say grip in one claim and leave engage in another] the cable.

20 21. A mine roof bolting system for use with a cable and comprising:
a barrel, the barrel having a first end and a second end, the second end defining a generally rounded surface;
a bore extending through the barrel between the first end and the second end, the bore sized to receive the cable and including a tapered portion;

a pair of wedges sized for placement in the tapered portion of the bore, the wedges shaped to cooperate with the tapered portion of the bore so as to frictionally engage a cable disposed in the tapered portion of the bore;

a recess defined in the first end of the barrel;

5 a driving nut sized for insertion in the recess, the driving nut adapted for engagement by a driving tool; and

a support plate having an aperture sized to receive the cable, the aperture including a surface adapted to receive the spherical surface of the barrel.

10 22. A method of installing a mine roof bolt comprising the steps of:

providing a barrel having a bore, a first end, and a second end, the second end having a rounded surface, the bore extending through the barrel between the first end and the second end and including a tapered portion, the bore sized to receive the cable;

15 providing a cable disposed through at least a portion of the bore;

providing a pair of wedges sized for placement in the tapered portion of the bore and positioned to engage both the tapered portion of the bore and the cable to thereby frictionally engage the cable;

providing a recess in the first end of the barrel; and

20 inserting a driving nut into the recess;

using a driving tool to turn the driving nut.